

INCENTIVE PRICING BEST MANAGEMENT PRACTICE FOR AGRICULTURAL IRRIGATION DISTRICTS

June 1998

Prepared by



Resource Consultants

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INTRODUCTION TO INCENTIVE PRICING

Incentive pricing involves setting water rates that provide motivation to use water efficiently. Pricing can consist of a fixed charge (a constant fee assessed to landholdings or acres in production), a water rate (a price per-acre-foot of water delivered), or some mixture of the two. The combination of fixed charges and water rates is the district's rate schedule.

Incentive pricing moves away from rate schedules based solely on per-acre fixed charges and toward rate schedules that incorporate both fixed charges and charges based on the amount of water that the farmer actually uses. Thus, conservation-oriented rate schedules allow individual farmers to be accountable for their own water applications. For example, under a per-acre-foot water rate the costs of an individual farmer's inefficient water applications are no longer shared by other landholders within a district; rather, the farmer is solely responsible for paying for his or her water deliveries.

Revising rate structures is a complex process. Rate structures should reflect the conditions and overall objectives of the particular District. For example, the split between fixed and variable costs may vary according to the type of water year, or the district's groundwater conditions.

For more detailed information on incentive pricing, see Appendix A.

This document discusses incentive pricing for agricultural irrigation districts. There may be other programs in addition to the ones discussed here that meet the incentive pricing criteria. A useful companion to the document is the *Incentive Pricing Handbook for Agricultural Water Districts* available through U.S. Bureau of Reclamation (Reclamation). Municipal and industrial water districts are encouraged to consult the California Urban Water Conservation Council's *Handbook for the Design, Evaluation, and Implementation of Conservation Rate Structures* for incentive pricing information.

Section 210 of the Reclamation Reform Act requires that most districts contracting for water with Reclamation prepare and submit Water Conservation Plans (Plan) with appropriate goals, measures, and timetables. Districts are asked to submit updated Plans every five years.

In addition, Section 3405(e) of the Central Valley Project Improvement Act (Title XXXIV of Public Law 102-575) (CVPIA) directs Reclamation to develop "criteria for evaluating the adequacy of all water conservation plans developed by [Central Valley Project] contractors." In response to this directive, Reclamation has published and revised "Criteria for Evaluating Water Management Plans" (Criteria). The most recent version of the Criteria was published in September, 1996.

The Criteria identify a number of "Best Management Practices" (BMPs) for efficient water use. For the purposes of the Criteria, "Best Management Practice" means a policy, program, practice, rule, regulation and/or ordinance, or the use of devices, equipment or facilities that meets either of the following items:

- An established and generally accepted practice among water districts that results in more efficient use, conservation or management of water.
- A practice for which sufficient data are available from existing water management projects to indicate that significant efficiency improvements or management related benefits can be achieved; that the practice is technically and economically reasonable and not socially or environmentally unacceptable; and that the practice is not otherwise unreasonable for most water districts to carry out.

Reclamation has identified "Critical" and "Exemptible" BMPs. Districts are required to implement Critical BMPs. Reclamation recognizes that the Exemptible BMPs may not make sense for district implementation. Districts are required to implement Exemptible BMPs unless the district provides adequate documentation to Reclamation to justify for an exemption (see Step 5 of the 1996 Criteria). Upon acceptance of such a demonstration, Reclamation will issue an exemption from the requirement.

Volumetric pricing is a critical BMP that involves a water pricing structure for district water users "...based at least in part on quantity delivered...". Three simple rules on volumetric pricing are as follows:

- Farmers must pay a per-unit price for water (volume charge),
- The district can use a combination of fixed and volume charges for revenue, and
- The district must do volumetric pricing—it cannot file for an exemption.

In addition to volumetric pricing, Reclamation identified Incentive pricing as an exemptible BMP. Incentive pricing is a pricing structure, such as tiered-block pricing, which promotes one or more of the following goals:

- Encouraging more efficient water use at the farm level,
- Supporting planned conjunctive use of groundwater,
- Increasing groundwater recharge,
- Reducing problem drainage, and
- Improving management of environmental resources.

Incentive pricing is an additional element to volumetric pricing. There are numerous misunderstandings about incentive pricing; it is not just the implementation of a price tier (though this is one category of incentive pricing). Incentive pricing:

- Is pricing water in a way that, through rewards or penalties, encourages farmers to manage water efficiently.
- Should not significantly increase the efficient farmer's water bill. (Incentive pricing can be designed to provide a disincentive for the above average user, without penalizing the average or below average user.)
- Is actually a very broadly defined concept that can accommodate many specific district programs. Reclamation has outlined six programs that can be used to comply with the incentive pricing BMP. (There may be other programs that meet the incentive pricing BMP.)
- Districts must either have in place, or planned for the near future, at least one effective incentive pricing program or they must apply for, and receive, an exemption.

It is important to remember that the "Incentive Pricing" guidelines are not a "how to" manuscript, and that a district needs to carefully study and plan price changes that are conservation oriented, but are consistent with other district objectives.

Basic Elements of Incentive Pricing

Reclamation will evaluate a proposed or existing incentive pricing rate structure to determine if it is a qualifying program. Reclamation will apply the following guidelines.

1. PROVIDES AN EFFECTIVE SIGNAL TO WATER USERS

Incentive pricing programs must provide an effective signal to water users that encourages efficient use of water. Thus, pro forma programs will not be accepted. Examples of unacceptable programs are:

- Insignificant incentive pricing adjustments--price adjustments that are small or set at levels out of range of practical water use so that the farmer is not even aware that incentive pricing exists.
- Internal water trading among farmers in water surplus districts--water trading is meaningful in water short districts but does not result in conservation when all farmers have surpluses.

2. PROVIDES ADEQUATE DOCUMENTATION

An effective plan must be formalized and documented, so that water users and Reclamation understand the program and so that it is consistently implemented.

The following areas should be documented:

- Water management objective--the objective of the incentive pricing program should be clearly stated. For example, a program may address seasonal water use, dry-year water use or drainage, among others.
- Board resolution--implementation of an incentive pricing program will require a board resolution. The resolution should be included in the proposed plan. If the incentive pricing program is only contemplated a draft resolution should be provided. Reclamation's approval of an incentive pricing program will be conditional until the resolution is fully adopted.
- Water rate schedule--a detailed list of water prices or the terms and conditions of trading programs should be provided.
- Procedures--the procedures required to implement the program should be spelled out, for both water users and Reclamation.
- Annual reporting--Reclamation reviews water conservation plans annually. Districts should include in their annual update a report that documents the operation of their incentive pricing program and describes any adjustments to it. As part of the annual review, Reclamation will be evaluating the program's effectiveness.
- Third-party impacts--any impacts to third parties or the environment must be addressed.

3. PROVIDES ADEQUATE MEASUREMENT, ACCOUNTING AND BILLING SYSTEMS

Effective incentive pricing programs will be continually monitored and adjusted to adapt to changing conditions. In addition, an incentive pricing program cannot be effective unless the price signal is actually delivered to farmers in their water bills. Thus, an effective program will include the ability to measure water, maintain relevant water and financial accounts and produce understandable and accurate bills.

Effective water measurement and accounting is necessary for developing a sound water management program. A district's measurement and accounting systems should be capable of tracking the amount of water delivered to individual water users (or leaving a field as drainage). These systems are effective water management tools because they help inform both the water user and the district about the quantity, timing, and location of water use or drainage.

An effective accounting system will track the transactions that take place under the program as well as the management objective of the program.

Water bills must convey to the farmer information about the amount of water delivered (or drainage flows if this is the objective of the district). If a tiered-block price structure is used the bill should include a breakdown of pricing according to the block structure.

Additional information on measurement and accounting can be found in A Guidebook for Preparing Agricultural Water Conservation Plans, Achieving Efficient Water Management, available from Reclamation.

4. IS CLEARLY COMMUNICATED TO WATER USERS

For an incentive pricing program to be effective, water users must be aware of it and understand it. A qualifying program must include measures to make farmers aware of the program on an ongoing basis. Initially, the district should provide all farmers with a written copy of its policy. The written policy document should be accompanied with appropriate explanatory materials that address common questions or expand on commonly misunderstood aspects of the policy. Farmers should be kept up-to-date on the evolution of the program by way of bill inserts, newsletters or other means.

5. RESPECT EXISTING ENVIRONMENTAL, THIRD PARTY LEGAL IMPACTS

Incentive pricing programs must not be in conflict with existing local, state, and federal laws and ordinances. In addition, environmental and third party impacts in the district and surrounding areas must be considered prior to the implementation of a newly developed incentive pricing program. For example, the district needs to consider the potential impacts of an incentive pricing program on groundwater overdraft and water quality.

Examples of Incentive Pricing Programs

Any one of the following examples – implemented by the district – will meet the requirement of the incentive pricing BMP. There may be additional qualifying programs. A district, of course, can have more than one program depending on its objectives.

- Formal district clearing house for internal water trades,
- District acts as water broker for water trades across districts,
- Rate schedules for multiple water management goals,
- Bilateral farm trades,
- Tiered pricing structure, and
- High volumetric price.

1. FORMAL DISTRICT CLEARING HOUSE FOR INTERNAL WATER TRADES

Intra-district trading programs may qualify as an incentive pricing programs. The key consideration is whether farmers are using the trading program. This will only happen in districts that do not have an overall water surplus. Some acceptable programs include:

- Trades between farmers within the district--prices must be set by buyers and sellers.

- Release pools--farmers may release water to pools for subsequent purchase by other farmers within the district.

Measuring Effectiveness

To be considered as a qualifying incentive pricing program, the following conditions must be met:

- The district must facilitate formal transactions,
- Farmers must be aware of the program,
- The water supply is in-adequate to meet crop requirements and a cheaper alternative water supply is not available, and
- The program must provide, on an annual basis, documentation that includes trading data--records of water trades, including date, amount and price (if available, but it is not necessary to identify individual farmers); and district price schedule--update as necessary.

Impacts of the Program

The decision to sell water by the farmer is voluntary. The farmer who is above average in water use efficiency can obtain additional revenue by such sales, or achieve other benefits.

2. DISTRICT ACTS AS WATER BROKER FOR WATER TRADES

Districts provide the service of finding willing buyers for their farmers' water. Districts may aggregate small amounts of water from individual farmers and sell to outside buyers in larger amounts. The district may not charge unreasonable brokerage fees.

Measuring Effectiveness

- A farmer should be allowed to lease his or her entire allotment of water or some percentage thereof, to a willing buyer outside the farmer's district.
- A farmer who intends to sell water outside the district should not be asked to pay a different water price to the district than what would have been paid had the farmer used the water.
- The district must ensure that leased water is not delivered to the lessor farmer.
- The district must be willing to transport and deliver water leased by its farmers to sellers outside the district for no more than average cost of distribution on its current deliveries. If a district incurs additional expenses in wheeling water, then the district can recover the additional expenses through wheeling charges, but the district must document such expenses.
- The district may not charge unreasonable brokerage fees.
- The district must address third-party impacts.

Impacts of the Program

The choice to lease water is made voluntarily by the farmer, who will not do so unless the deal is profitable. Since the district is brokering the trades it can restrict trading to those exchanges that do not adversely affect district programs.

3. RATE SCHEDULES FOR MULTIPLE WATER MANAGEMENT GOALS

If, in addition to managing water use efficiency, the district is using water pricing for conjunctive groundwater uses, reduce drainage from pre-irrigations or other purposes, it may qualify for the incentive pricing BMP. Examples of qualifying programs include:

- Seasonal price structures that encourage efficient use of water for pre-irrigation,
- Wet-year/dry-year pricing that encourages conjunctive use,
- Volumetric price structures with standby charges that encourage conjunctive use,
- Pricing that achieves reduced return flow drainage, and
- Pricing that encourages water use for environmental purposes--such as providing water for wildlife habitat.

Measuring Effectiveness

Because programs of this type are highly specific to the district's characteristics, it is important to provide sufficient documentation to Reclamation to support the proposed qualifying plan.

Documentation must include:

- A specific statement of the management objective, and
- A description of how the proposed price structure will help the district meet the management objective.

Impacts of the Program

The distribution of impacts depends on the specific program.

4. BILATERAL FARM TRADES

Here, an individual farmer enters into a direct lease with a willing buyer who resides outside the selling farmer's district. The district may retain the authority to concur or disapprove any specific bilateral trade, if it can document that the bilateral trade will harm district members. The following principles apply to a qualifying program.

Measuring Effectiveness

- A farmer should be allowed to lease his or her entire allotment of water, or some percentage thereof, to any willing buyer outside the farmer's district.
- A farmer who intends to sell water outside the district should not be asked to pay a different water price to the district than what would have been paid had the farmer used the water.
- The district must ensure that the farmer is not delivered the leased water.
- The district must be willing to transport and deliver water leased by its farmers to sellers outside the district for no more than average cost of distribution on its current deliveries.
- The water price (net of distribution fees) paid by the outside buyer is determined solely by the two parties to the bilateral contract.
- Documentation should include a statement of terms and conditions, records of trades, a current price schedule, and distribution costs.

Impacts of the Program

The choice to lease water is made voluntarily by the farmer, who will not do so unless the deal is profitable.

5. TIERED PRICING SCHEDULE

In a tiered pricing schedule, farmers buy water in specified quantities (blocks). Each successive block has a higher volumetric price of water per unit. For example, a district might have the following tiered price schedule:

Category	Block Size (acre-feet/acre)	Water Price (\$/acre-foot) or Charge
Fixed Charge	0	\$30 per acre
1 st Block	2.5	\$50 per acre-foot
2 nd Block	>2.5	\$75 per acre-foot

The second block price is a higher water rate giving farmers using that much water more incentive to use water efficiently. If there is excessive revenue from the implementation of the second block price, the first block price and fixed charge can be adjusted to achieve the district revenue goal. Specific block structures may be considered for the various crop types grown in a district. More detail about setting block sizes and tiered water rates is presented in Appendix B.

Measuring Effectiveness

- The size of the first block can be no greater than the district average use.
- The price of the first block must capture all district variable costs.
- The price of the second block must be at least 50% greater than the price of the first block unless it can be demonstrated that a lower volumetric price can send a significant signal to the water user.

Impacts of the Program

With a tiered-block price structure the farmer manages water use and thus the total cost of water. If it is profitable to do so, a farmer is free to consume in a higher-priced block. When consuming in a higher-priced block is not profitable, a farmer can change water management practices to reduce total water costs.

6. HIGH VOLUMETRIC PRICING

If the district has a volumetric price structure and if the water rate is sufficiently high to encourage efficient use of water, then the district may qualify for the incentive pricing BMP.

Measuring Effectiveness

In order to be considered as incentive pricing, the district's water situation must meet the following two conditions:

- Water supply (groundwater, Reclamation surface water, and other surface water rights) is less than ET (potential), and

- Irrigation technology currently in use results in an average on-farm efficiency greater than 80%.

Or:

- The district has volumetric water rates greater than \$75 per acre-foot, unless it can be demonstrated that a lower volumetric price can send a significant signal to the water user.

7. GUIDELINES FOR EVALUATING EXEMPTION REQUESTS

Exemptions from the incentive pricing BMP may be granted. In order to qualify for an exemption, the district must show, for each type of qualifying program identified above, that the programs are not cost-effective, are not financially feasible, are not legally permitted, or cause unacceptable environmental impacts.

The language from the Guidelines describing the exemption process and standards is set out in Appendix C.

Appendix A - Incentive Pricing

To encourage efficient water use, a district's pricing and billing procedures should be based, at least in part, on the quantity of water delivered. Quantity-based charges can be incorporated into various existing pricing structures to provide some degree of economic incentive for efficient water use. Fairness in water billing is an additional benefit of quantity-based pricing structures.

When evaluating water pricing structures, it is important to consider potential effects on revenues generated through water sales. Under the new pricing system, will there be sufficient revenues to cover district operating costs? Will modifications to the pricing structure result in supplemental revenues that could be used to develop more improvements?

Districts can encourage efficient water use by increasing the unit price of water as deliveries increase. With incentive pricing, a base price per unit of water is charged for all water deliveries up to a certain amount, or block. Water use in excess of this block is then charged at a higher unit price. One or more pricing levels (or "tiers") may exist within a pricing structure. The specific design of these structures will depend on individual district objectives. Figure 1 depicts some different types of water pricing structures.

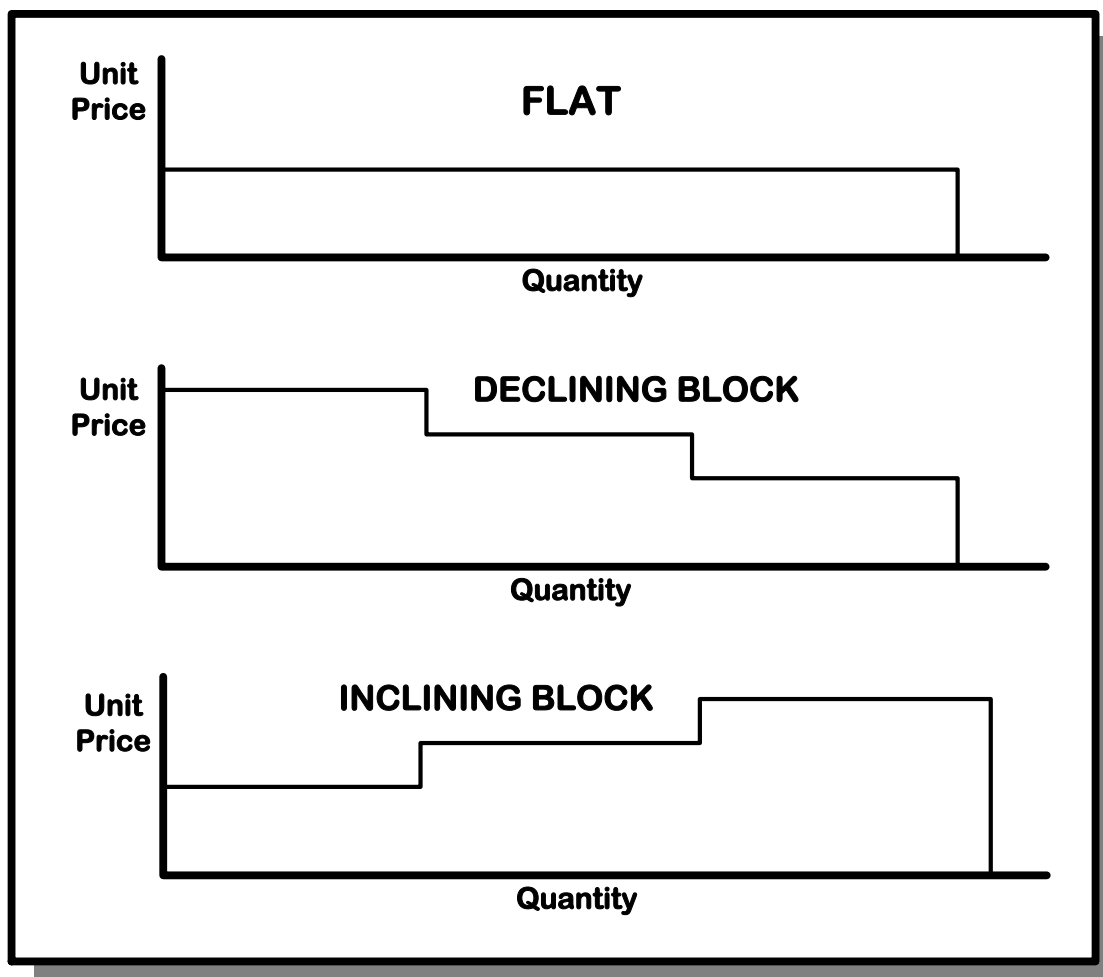


Figure 1: Types of Water Pricing Structures

The demand for water within an irrigation district is based on crop production and planning decisions made at the farm level. It also depends on crop selection, irrigation technique and land

characteristics. The change in water demand in response to a change in water price is termed “demand elasticity.” Factors affecting demand elasticity include:

- Crop values,
- Crop tolerance to water shortages,
- Ability to change crops,
- Ability to change irrigation methods, and
- Availability of alternative water sources.

Typically, changes in water prices lead to only small changes in the quantity of water demanded. Therefore, the water supply and demand relationship is fairly “inelastic.” Water demand, price elasticity, and potential changes in district revenues resulting from price changes are important considerations in evaluating the use of incentive pricing as a water management measure.

Incentive pricing programs may be structured to optimize conjunctive use. For instance, a program may be designed to encourage surface water deliveries and groundwater recharge in wet years by lowering the price to the farmer. In dry years the surface water price can be increased to encourage increased groundwater extractions.

Incentive pricing has successfully been implemented in California’s Broadview Water District. The purpose of this structure is to motivate farmers to improve the efficiencies of their on-farm irrigation operations and to reduce the quantity of drainage water. The district’s increasing block rate pricing structure has two components, crop-specific price levels and field-level accounting of water deliveries. Crop-specific price levels are required because the volume of drain water generated from water application varies from crop to crop. Crops with higher ET rates are permitted to receive more irrigation water before reaching the higher price level. Without these concessions, farmers could be limited in the kinds of crops they plant.

Field-level accounting of water deliveries encourages the farmers to carefully monitor their irrigation supplies.

Incentive pricing may be an appropriate water management measure if the district’s existing pricing structure is based on a fixed rate or if water charges are not linked to the amount of water delivered. To evaluate incentive pricing and other rate structures for your district, refer to the information and methods presented in Reclamation’s Incentive Pricing Handbook for Agricultural Water Districts.

Appendix B - Tiered Pricing

This appendix provides a step-by-step process for setting a tiered-block rate structure. There are a number of things you should consider as you set your rate structure and as you introduce it into your district. For example, it is important that you communicate effectively with all stakeholders throughout the process of changing water rates. The Incentive Pricing Handbook for Agricultural Water Districts, available from Reclamation, can assist you in setting your rates. We recommend that you read the Handbook before you try to install a tiered-block rate structure.

In order to calculate your tiered-block price schedule, you will need to know the following:

- Total district water deliveries (see Table B.1),
- Total district acreage (see Table B.2),
- District fixed costs, and
- District variable costs.

Table B.1: District Water Deliveries Worksheet

Total Annual Deliveries (acre-feet)	
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Table B.2: District Acreage Worksheet

Total District Acreage (acres)	
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FIXED COSTS

Fixed costs stay the same regardless of how much water your district delivers. Examples of fixed costs are repayment or amortization obligations (but not per-acre-foot charges under a supply contract), fixed payments under a water supply contract, administrative costs, maintenance costs (but not operational costs), insurance, interest on capital improvements and payments to a replacement reserve fund. Fixed costs for an example district are given in Table B.3.

Table B.3: Fixed Costs Worksheet

Total Repayment/Amortization Cost (\$/year)	
Administration & Maintenance Cost (\$/year)	
Replacement Reserve Fund (\$/year)	
Other Fixed Costs (\$/year)	
Total District Fixed Costs (\$/year)	

VARIABLE COSTS

Variable costs are costs that are pegged to the amount of water the district delivers. Examples are operational costs like pumping or water treatment, or per-acre-foot charges (water rates) from water supply contracts. State variable costs in the amount that would be incurred for the average conditions for your district.

Variable costs for an example district are shown in Table B.4.

Table B.4: Variable Costs Worksheet

Total Annual Pumping Cost (\$/year)	
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Total Annual Water Treatment Cost (\$/year)	
Other Variable Costs(\$/year)	
Total District Variable Costs (\$/year)	

SETTING A QUALIFYING TIERED-BLOCK WATER RATE

In the following worksheet you will set a qualifying tiered-block water rate (Table B.5).

Table B.5: Tiered-block Price Worksheet

1.	Fixed Charge (\$/acre)	
2.	Maximum First-Block Size (af/acre)	
3.	Minimum First-Block Price (\$/af)	
4.	Minimum Second-Block Price (\$/af)	

Line 1. Fixed Charge is calculated by dividing the District's total fixed costs by the district acreage.

Line 2. Maximum First-Block Size is determined by dividing the district total water deliveries by the total district acreage. This is the maximum block size for a qualifying program.

Line 3. Minimum First-Block Price is obtained by dividing the total district variable costs by the total district deliveries. If parts of your district have significantly different variable costs (due to pumping) you may need to make this calculation separately for each part. This is the minimum first-block price for a qualifying program.

Line 4. Minimum Second-Block Price is calculated by multiplying the Minimum First-block price by 1.5. The result is the minimum second-block price for a qualifying program.

Appendix C - Exemption Process

Intent

To demonstrate in a clear and concise manner that a BMP is either not cost-effective, not financially feasible, not legal or not environmentally possible for a district to implement.

Evaluation

These Criteria recognize that some BMPs are not appropriate or possible for some districts to implement. To document an exemption, provide the basis, rationale, and details for excluding a BMP; such documentation shall address, as appropriate, cost-effectiveness, financial feasibility, and environmental or legal constraints to BMP implementation. Reclamation will consider exemption requests prepared using the final AB-3616 exemption process.

DETAIL EXPECTED IN AN ADEQUATE PLAN

Legal Constraints

In order to justify a BMP exemption because it would not be legal for the district to implement, provide the following:

- A list of any known laws, regulations, court decisions, or other legal constraints that make it illegal for the district to implement the BMP,
- A list of steps that would be required to remove these constraints,
- A description of steps the district has taken to remove these constraints, and
- Documentation of efforts by the district to work with other entities that would have the legal authority to carry out the BMP within the district's service area.

Environmental Constraints

In order to justify an exemption due to known adverse environmental impacts, the Plan must document the critical environmental issues and known (qualitative and/or quantitative) negative impacts of the BMP and an explanation of why effective mitigation of these impacts is not possible. If mitigation of the environmental impacts is possible, the practice must be implemented unless it can be exempted by another exemption category. For example, if the mitigation costs make the project economically infeasible, a discussion of the mitigation plan and necessary mitigation costs should be included as a part of the economic analysis.

Economic Constraints

In order to justify an exemption due to economic constraints, the Plan must document a benefit-cost analysis that demonstrates that the costs to the district outweigh the benefits to the district over the life of the measure. Districts must perform the analysis by comparing the present value of all benefits to the present value of all costs and document the projected/estimated benefits and costs and the methodology for analysis (benefits and costs should be quantified to the extent possible). The analysis performed for each excluded BMP (from the district perspective) must include, but is not limited to, the following benefits and costs.

Benefits

- All capital costs avoided by the district that include, but are not limited to, the costs associated with the development of new supplies (e.g., studies, construction, labor, etc), transportation, and the required increase in storage, distribution capacity, and wastewater facilities and treatment capacity, etc.
- Operation and maintenance costs avoided by the decrease in production and distribution of water or the treatment and disposal of wastewater; including, but are not limited to, energy, labor, treatment, storage, drainage treatment and disposal, etc.
- Water purchases avoided by the district
- Environmental costs avoided by the district
- Environmental enhancements
- Revenues from other entities that include, but are not limited to, revenue from the sale of water made available by the BMP, financial incentives received from other entities, etc.
- Other benefits to the district customers that include, but are not limited to, hydropower, improved crop yields, improved crop quality, labor savings, fertilizer savings, increased farm income, etc.

Costs

- Capital expenditures incurred by the district for implementation of the BMP that include, but are not limited to, equipment, supplies, materials, construction, etc.
- Operation and maintenance costs to plan, design, implement, enforce, and evaluate the practice
- Financial incentives to customers
- Losses in revenues
- Costs to the environment
- Other costs to the district

Several accepted benefit-cost analysis methodologies exist (e.g., California Energy Commission's Integrated Resource Planning Methodology, generally accepted accounting principles, etc.). Districts are considered to be the best suited to evaluate their own economic situation with an appropriate methodology.

Financial Constraints

In order to adequately justify an exemption due to financial constraints, the Plan must clearly document the following:

- The benefits and costs of the BMP to the district,
- The district funding needed to implement the cost-effective BMP,
- A discussion regarding why the district cannot finance the BMP through rate adjustments, assessments, etc.,
- A discussion of the district's reasonable efforts to secure funding from other entities that include, but are not limited to, lending institutions and bonding authorities and an explanation of why these entities would not provide funding, and

- The required amount of a grant or subsidy that would be needed to feasibly implement the BMP if financing or partnerships could not be obtained.

Appendix D - References

Incentive Pricing Handbook for Agricultural Water Districts. U.S. Bureau of Reclamation, April 1997. Available through U.S. Bureau of Reclamation. Contact your area water conservation specialist or Julie Spezia at the Mid-Pacific Region.

Guidebook for Preparing Agricultural Water Conservation Plans, Achieving Efficient Water Management. U.S. Bureau of Reclamation, December 1996. Available through U.S. Bureau of Reclamation. Contact your area water conservation specialist or Julie Spezia at the Mid-Pacific Region.

Handbook for the Design, Evaluation, and Implementation of Conservation Rate Structures. California Urban Water Conservation Council, 1996. Available through American Water Works Association